

Introduction

This Appendix outlines the planning process for Mitigation Monitoring and Reporting (MMRP) of the Powder River Basin Oil and Gas Project Area. This document describes the basic components of the plan and steps involved in its implementation.

The PRBO&G Draft EIS contains a detailed description of the nature of exploration and development of coal bed methane in the Powder River Basin. It is speculative to predict how future development will proceed. There is uncertainty about the specifics of future development. Because of this uncertainty, a number of assumptions were necessary to predict the impacts associated with future development. Those assumptions may or may not be correct. Therefore, mitigation measures may need to be modified as development evolves.

Purpose and Need

There is uncertainty regarding how the environment will react to future development in the Powder River Basin. For instance, will adopted mitigation and best management practices be adequate to prevent water quality degradation in the Tongue, Powder and Little Powder Rivers? Will operating within decibel level thresholds be sufficient to protect grouse breeding integrity? These questions are particularly relevant given our current ability to predict cumulative perturbations on the ecosystem. Predictions regarding the severity of the impacts are complicated further by the fact that some of the development may occur on private and state lands where protective measures (such as seasonal restrictions to protect big game and raptor nests, no surface occupancy stipulations) are not typically applied. Will perturbations on private lands increase density on Federal lands resulting in deteriorating quality of habitat?

The uncertainties as to where and at what level development will proceed as well as uncertainties associated with the environmental sciences that were used to predict impacts suggest that the one-time determination of impacts that is included in the EIS may not be appropriate for this project. A MMRP may be suitable for dealing with these uncertainties. Such a plan/process would provide a mechanism for continuously modifying management practices in order to allow development while continuing to protect the environment. CEQ regulations require appropriate application of continual monitoring and assessment. Section 102(2)(B) of NEPA calls for *"methods ... which will insure that presently unquantified environmental amenities and values may be given appropriate consideration,"* CEQ regulations (40 CFR 1505.2(c); 1505.3(c) and (d)) state *"a monitoring and enforcement program shall be adopted and summarized, where applicable for any mitigation"* and that agencies *"may provide for monitoring to assure that their decisions are carried out and should do so in important cases."* The lead agency must *"upon request, inform cooperating or commenting agencies on progress in carrying out mitigation measures which they have proposed and which were adopted in the decision. " And, "upon request, make available to the public the results of relevant monitoring.*

Goals and Objectives

The goals and objectives of the MMRP are to develop resource-monitoring plans for specified resources to:

- Determine the effects of development on these resources;
- Determine the effectiveness of the mitigation measures contained in the Record of Decision (ROD);
- Modify the mitigation measures as deemed appropriate to achieve the stated goal/objective;
- Assure that non-oil-and-gas related BLM decisions (such as grazing, recreation, etc.) regarding, are coordinated with oil and gas-related development;
- Provide a rapid response to unnecessary/undue environmental change;
- Validate predictive models used in the EIS and revise the models/projections as necessary based on field observations and monitoring;
- Accurately monitor and predict cumulative impacts through BLM maintenance of a Geographic Information System (GIS) on Federal and non-Federal lands and how they are affecting resources;
- Provide guidance for monitoring (surveys) upon which the need to initiate Section 7 consultation with the USFWS will be determined.

Resource Monitoring Plans and Objectives

Monitoring Plans will be prepared for the following resources and activities. Determination of the on-the-ground monitoring will be made by the BLM and cooperating agencies that carry out the monitoring programs.

• Wildlife Resource

Upland Game - Sage grouse/sharp-tailed grouse

1. Monitor and document grouse populations, breeding and nesting activity for changes, if any, in numbers, distribution, and reaction to oil/gas development.
2. Document changes, if any, in breeding and nesting population numbers, distribution, habitat quality, and changes in animal numbers, distribution, and reaction to oil/gas development.

Raptors –

1. Monitor and document raptor populations and their nesting activity and locations within the PRB.
2. Document changes, if any, in nesting locations, active nest sites, and their reaction to oil/gas development.

T/E & Sensitive Species - Bald eagle, black-footed ferret, mountain plover

1. Complete clearance surveys and document results for these species within the PRB.
2. For sightings or sign, initiate consultation with the USFWS and initiate intensive monitoring for the species occurrence and distribution.

Aquatics -

Ponds developed for fisheries shall be fenced to exclude livestock; water quality in these ponds shall be sampled on an annual basis for selenium, TDS, and sodium bicarbonate, at a minimum.

Stream channel monitoring for erosion, degradation, and riparian health shall be conducted on an annual basis. Surveys shall include no less than one stream reach above all CBM discharges and several stream reaches below CBM discharges. Monitoring stations will be placed above all CBM outfalls and below all CBM outfalls, at least on mainstems.

Sub-watersheds that will receive CBM produced waters and shall be monitored for macroinvertebrates and fish populations include: Upper Tongue River, Upper Powder River, Salt Creek, Crazy Woman Creek, Clear Creek, Middle Powder River, Little Powder River, Antelope Creek, Upper Cheyenne River, and Upper Belle Fourche River. Sampling sites shall be established at existing flow and water quality monitoring stations where possible. Sampling shall occur on an annual basis during low flow periods, and all data collected shall be entered into a central database. At least two sampling locations per stream or river shall be established in these watersheds:

- **Water**

Groundwater

The effects of infiltrated waters on the water quality of existing shallow groundwater are not documented at this time. Potential impacts will be highly variable depending on local geologic and hydrologic conditions. It may be necessary to conduct investigations at representative sites around the basin to quantify these impacts, and provide site-specific guidance on the placement and design of CBM related impoundments.

The existing groundwater-monitoring program consisting of a battery of wells throughout the project area will continue and expand as development proceeds.

Surface water

The Bureau of Land Management, in cooperation with the WDEQ, WSEO, USGS and others fund an extensive network of surface water monitoring sites in the project area. Approximately 47 stations are currently operated to continuously record stream

flow on major rivers and streams in the area. Over half of these sites include periodic water quality analysis as well. The PAW also contracts water quality sampling at 26 sites on tributary streams in the region.

All parties involved are currently developing a comprehensive, basin wide surface water-monitoring plan that will integrate the efforts of all cooperators into a single monitoring effort. All data from this monitoring network will be compiled at a single depository and will be available to all interested parties.

Natural Springs

Initial flow rates would be measured, and a water quality sample would be obtained. Periodically the springs would be re-evaluated to monitor any changes in the quantity or quality as a result of CBM development.

- **Reclamation/Best Management Practices**

Surface disturbance revegetation -

1. Annually monitor and report on disturbed site reclamation/revegetation and invasive species concerns.

- **Soils**

1. Compile data related to LAD operation and mitigation to determine best management practices under various soil/water parameters.

- **Air Quality**

Nitrogen oxide emissions

1. Complete an annual monitoring report of actual on-the-ground calculated potential NO_x emissions (i.e., the level of NO_x emission from permitted, actually constructed/installed facilities based upon the permitted level of emissions per well location, compressor facility, etc.) for a sample size of the project area.
2. Continue to cooperate in the implementation of existing visibility and atmospheric deposition impact monitoring programs. Evaluate need for additional monitoring.

- **Transportation**

Access roads and sales pipelines

1. Monitor construction to ensure design and use standards are met and maintained.

2. GIS will be updated at least semi-annually based on companies' submittals of as built georeferenced POD maps.

Mitigation, Monitoring and Reporting Planning Process Implementation

The BLM Buffalo Field Manager will implement the MMRP by establishing the *Powder River Basin Working Group* (PRBWG). The PRBWG will function as a resource working group consisting of BLM, cooperating agencies and other agencies who have expertise in the area. The structure of the PRBWG will be as follows:

The PRBWG may include representatives from the following federal, and state agencies:

- Bureau of Land Management [Buffalo and Platte Field Offices and personnel with special expertise from other BLM offices]
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- USDA Forest Service
- State of Wyoming agencies [Wyoming Game and Fish Department, Wyoming Department of Transportation, Wyoming Department of Environmental Quality - Air and Water Quality Divisions, State Historic Preservation Office, State Engineers Office, Wyoming Oil and Gas Conservation Commission, etc.]
- U.S. Environmental Protection Agency
- Johnson, Sheridan, Campbell and Converse County government [particularly planning and zoning, road and bridge]

An MMRP will be initiated after the approval of the PRBO&G ROD. The primary function of the PRBWG will be to:

- Review the development and implementation of monitoring plans for the PRB oil and gas development;
- Meet at a minimum once a year or more often as needed;
- Keep written record of meetings and disseminate to members and interested public;
- Conduct field inspections as needed to review the implementation of construction and rehabilitation operations; Review status quo and any new information since last meeting (e.g., monitoring results of impact mitigation effectiveness);
- Synthesize monitoring plan activities/expectations for the coming year, based upon operator input and new information;
- Review recommendations from the Task Groups and submit a recommendation to BLM (e.g., management practices and monitoring needs for upcoming field season);
- Oversee implementation of monitoring.

The PRBWG may establish Task Groups. The individual Task Groups would be initiated during the first meeting.

The BLM will implement and coordinate the MMRP Process. The leadership for the coordination will be located in the BLM Buffalo Field Office. Meetings of the PRBWG

and TG's will be held at a minimum, annually. Minutes of the meetings will be made available to the public. A qualified facilitator, if deemed necessary, will facilitate the PRBWG meetings. The meeting agenda will include the following:

Function of PRBWG at First Meeting:

Explain Purpose and Need for MMRP process;

- Explain organizational structure and functional responsibilities of PRBWG and TGs;
- Establish and select PRBWG representatives;
- Review draft Memorandum of Understanding;
- Establish and select TG members;
- Set date, time, and place for next PRBWG meeting.

Function of PRBWG at Subsequent Meetings:

- Review minutes from previous meeting;
- Reports presented from the TG's on monitoring results;
- Review recommendations from TG's;
- Develop any changes to mitigation measure recommendations if necessary;
- Submit recommendations and monitoring results to BLM;
- BLM specify any new directives, set date, time, and place for next PRBWG meeting.

Task Group Functions. Separate resource or activity Task Groups (TG's) will be established to complete the following:

- Recommend implementation of specified resource/activity monitoring plans;
- Keep written record of meetings and disseminate to PRBWG members and interested public;
- Implementation protocol including proposed fund sources;
- Annual monitoring report needs and meeting frequency;
- Resource concerns (e.g., based upon current conditions, drilling plans, etc.)
- Preparation of the monitoring plan and for evaluation of monitoring results, review, evaluate and summarize past/present data pertaining to the resource;
- Annual survey/inventory, monitoring, etc. that needs to be completed;
- Evaluation of mitigation measure(s) effectiveness;
- Results of monitoring and evaluation of the effect of project development on the resource;
- Implement monitoring plan as approved by BLM.
- Review and evaluate monitoring data collected;
- Present and submit monitoring results annually to PRBWG;
- Review and evaluate current monitoring plan;
- Modify monitoring plan and implement as approved by BLM;
- Recommend modifications to the development and monitoring plan to the PRBWG and BLM;

- If necessary, recommend modification to mitigation as needed.

The TG leadership for the coordination among the group and for the development, implementation, and reporting results of the monitoring plans will be as determined by group members. Meetings of the TG's will be held as often as deemed necessary but at least annually. The TG meetings will be facilitated as deemed by the group. TG meetings will be held during work hours. The agenda will be developed by the TG leader to address the necessary items as defined under the TG Functions above.

MMRP Funding

The PRBWG will work with the O&G industry to implement the monitoring programs specified. Agencies and cooperators will work with industry in corporate funding of monitoring to the extent that budget allocations permit.

